

ABSTRACT

5 We describe the novel use of a sugar-containing hydrogels as very highly porous, aqueous support material for the immobilization of oligonucleotides, peptides, proteins, antigens, antibodies, polysaccharides, and other biomolecules for sensor applications. The unusually large sizes of the interconnected pores allow large target molecules to pass rapidly into and through the gel and bind to immobilized biomolecules. An additional
10 advantage of the sugar-containing hydrogels are their extremely low non-specific absorption of labeled target molecules, providing low background levels. State-of-the-art hydrogel materials do not have this type of homogeneous interconnected macroporosity, thus large target molecules cannot readily diffuse through them. In addition, they nearly always experience non-specific (background) absorption of labeled target molecules,
15 limiting their usefulness in sensor applications. This invention provides a method for preparing a sugar polyacrylate hydrogel with functional chemical groups which covalently bond oligonucleotides and peptides. A method for copolymerizing acrylate-terminated oligonucleotides with sugar acrylate monomers and diacrylate cross-linking agents is also provided.

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